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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/518,475

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Torbjorn Ling

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EXAMINER

LUK, EMMANUEL S

ART UNIT

PAPER NUMBER

1791

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DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/518,475	Applicant(s) LING ET AL.	
	Examiner EMMANUEL S. LUK	Art Unit 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 13, 14 and 16-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13, 14 and 16-20 is/are allowed.
- 6) ☒ Claim(s) 21-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 21, 22, and 25 are rejected under 35 U.S.C. 103(a) as obvious over Chou (WO 00/00868, see IDS) in view of Phipps (4120995).

Chou teaches the use of release materials in lithographic apparatus and method for creating ultra-fine patterns (sub-25 nm) in a thin film on a substrate from a mold (see abstract). Chou teaches a coating of molecules from a specific type of reactive compound, the compound having a halogen or cyano element, especially Cl, F, or Br (see page. 8, line 22), silane is also mentioned (pg. 18, lines 21-31). The mold surface can be of any surface to which the release providing molecules may bond (pg. 10, lines 3-4), the release surface may be metallic, or metal oxides, as is known in the molding art (pg. 10, lines 5-9) and example given of Si, Ti, Zr, Cr, Ge (pg. 9, lines 25-27). The mold layer 14 having a plurality of features 16 and having a release layer 17 bonded to the surface of the features on the molding layer (pg. 11, line 16 to pg. 12, line 33). Claim 21 states that the metal has been applied to the surface and then brought to oxidise and then applying the anti-adhesive layer. These are process limitations to making the apparatus and Chou already teaches the claimed structure and it would have been obvious to one skill in the art that any process can be used to create a structure, therefore Chou teaches this claimed structure.

Chou fails to specifically teach the anti-adhesive layer being chemically bonded to the metal oxide film.

Phipps teaches a process of bonding a durable low surface energy coating to a metal or oxide surface, the coating being a fluorinated alkyl group, that includes: $R_f-O-(CH_2)_n-Si-X$, which also includes a silane group. The fluorinated alkyl group imparts coating durability and a low surface energy to the element, see Col. 1, lines 6-19).

It would have been obvious for one of ordinary skill in the art to modify Chou to apply a low energy coating that would bond with an oxide film such as the process taught by Phipps thereby forming a durable low surface energy coating that is tightly bonded to an oxide surface (Col. 1, lines 6-8).

In regards to the mechanically stable oxide film layer, this is considered inherent for the oxide layer in Chou since it is a release layer upon the surface of the apparatus.

3. Claims 23, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chou (WO 00/00868, see IDS) in view of Phipps as applied to claims 21, 22, and 25 as shown above, and further in view of Breen (6380101).

Chou in view of Phipps teaches the claimed apparatus as shown in the rejection above of claims 21, 22, 25, and 27. Chou fails to teach the specific thicknesses.

Breen teaches a metal oxide layer having a thickness of 50 to 1000 nm.

One would be motivated to use Chou and Breen since both pertain to apparatus that create micro and nanoscale surfaces, and both pertaining to metal layers having a protective anti-adhesive layer. Both teach the use of a protective layer on a metal layer

and thus both are relevant to one skilled in the art for films and coatings particularly for the creation of microstructures. Thus, it would have been obvious for one of ordinary skill in the art to modify Chou with the thickness of the metal oxide layer as taught by Breen.

Response to Arguments

4. Applicant's arguments with respect to claims 13, 14, 16-26 have been considered but are not persuasive. The arguments presented forth by the applicant's concerning the prior art reference, particularly in regards to the apparatus claims are noted, but are not persuasive. The structural limitations of an apparatus need only to be similar to the claimed structure but need not be formed from the same claimed process. In this case, Chou in view of Phipps teaches the anti-adhesive layer with at least one group containing fluorine that is bonded to the metal oxide film (the claimed metal layer that is then oxidised is a process limitation and only the oxide film is the structural limitation), and this is taught by the Chou reference. The applicants have applied arguments for method claims to the apparatus claims as per page 7 of their arguments, these are not persuasive since as stated previously in the arguments, the process of forming the oxide film layer from the metal while it is noted, it is the same since the oxide layer of Chou has to be inherently mechanically stable in order to operate as a stamper. Since Chou teaches a stamper with an oxide layer that has a compound layer that is on top, this covers the claimed structure.

In regards to the arguments concerning the method claims, the arguments are persuasive and are indicated below.

Allowable Subject Matter

5. Claims 13-20 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record fails to teach the method as claimed by the applicants and in accordance with the applicant's arguments concerning the depositing step of depositing the claimed metals, oxidising step, and the application of the reagent on a mold tool adapted to be used for forming nano scale pattern, particularly with the positive limitation of the stamp blank with the structured pattern.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to EMMANUEL S. LUK whose telephone number is (571)272-1134. The examiner can normally be reached on Monday-Fridays from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra N. Gupta can be reached on (571) 272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yogendra N Gupta/
Supervisory Patent Examiner, Art Unit 1791

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